

PROJECT TITLE : BIOTECHNOLOGY
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STRIP EXTRACT DENITRATION (1)

Tests are carried out to denitrate extracts of burley strips prepared by an "Ex-Technik" extractor. Our normal denitration procedure did not work with these extracts. Instead of cell growth and denitration only alcohol was produced. A dilution of the concentrated extract (8 % TS) 1:1 with water did not improve the results. But as soon as in a continuous cultivation strip extract is partially replaced by a stem extract, growth resumes and denitration occurs. Thus, we can conclude that in a pure strip extract some essential substances are missing, and their absence is limiting growth. However, these substances are present in stem extracts. Work on their determination continues.

NITRATE ELECTRODE (2)

Tests with the Orion nitrate electrode gave good results. If the nitrate level in tobacco extract is determined by the Technicon procedure and by electrodes, a variation of $\pm 3\%$ can be found. The Orion nitrate electrode can be used to continuously monitor the nitrate content of solutions over a short period of time. Within 15 hours one finds a standard deviation of 0.8 % in a pure nitrate solution and of 1.6 % in a 1:100 diluted tobacco extract. The fact that nitrate electrodes cannot be sterilized gives some problems in continuous measurements. Every 15 hours the entire dilution/measurement unit has to be cleaned. Otherwise strong bacterial growth and nitrite accumulation occur.

ACID CONSUMPTION (3)

Acid consumption in the Nino process showed to be the same at pH 5.5 as at pH 4.0 (see Monthly Report February 1980, Biotechnology).

STERILIZATION (4)

The lowest temperatures and shortest incubation times needed to assure sterilization were determined. It was found that Ninomass has to be treated at least 60 min. at 80°C (or 10 min. at 90°C), centrifuged extracts at least 30 min. at 80°C (or 10 min. at 90°C) to kill all viable cells.

TOTAL NITROGEN DETERMINATION (5)

A method for the determination of total nitrogen was developed. The procedure is based on the Kjeldahl method and allows to take into account also the nitrate nitrogen. (6)

MISCELLANEOUS

- 500 g freeze-dried Ninomass from trial Nino 55 have been prepared and sent to PM USA Flavor Department.
- Media for tissue cultures have been prepared.
- Ten total nitrogen were determined for other groups.

REFERENCES

1. C. Aegerter, Notebook 91204, 1-4
2. J. Berney, Notebook 128, 45-50
3. M.-F. Mangilli, Notebook 791205, 18/19
4. M.-F. Mangilli, Notebook 791205, 23/29
5. A. Hänggi, Notebook 790904, 3-15
6. Büchi Laboratory-Techniques Ltd.
Nitrogen Information No 7.

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